

**5 HDDs eSATA-to-SATA
RAID-0/1/5 Tower
ANS-9050E**

User's Manual

Version 1.0



2SAN

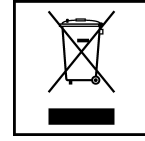
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WEEE Statement

English

In order to cope with the increasing waste electrical and electronic equipment, reduce the use of landfill and incinerator, and prevent the harmful matter of waste equipment from entering the environment, the European Union (EU) has set the Directive on Waste Electrical and Electronic Equipment (WEEE) asking manufacturers to collect, recycle and treat waste electrical and electronic equipment properly. Member nations already established their free of charge recycle systems of WEEE before August 13, 2005. Accordingly, 2SAN has to be responsible for recycling all products exported to Germany. You can return your 2SAN product that needs recycling to a local collector.

WEEE Erklärung

German

Mit dem Ziel die steigende Menge elektrischer und elektronischer Altgeräte zu bewältigen ohne hierzu unnötig Mülldeponien und Verbrennungsanlagen zu belasten und um die Verschmutzung der Umwelt durch freiwerdende Stoffe aus den Altgeräten zu vermeiden, hat die Europäische Union (EU) die Richtlinie über Elektro- und Elektronik-Altgeräte erlassen. Die Richtlinie verpflichtet Hersteller, elektrische und elektronische Altgeräte umweltgerecht einzusammeln, zu recyceln und zu entsorgen. Die Mitgliedsstaaten der EU haben bereits ihre kostenfreien Recyclesysteme konform der WEEE vor dem 13. August 2005 eingerichtet. Entsprechend der Richtlinie ist 2SAN verantwortlich für die umweltgerechte Entsorgung aller nach Deutschland exportierten 2SAN Produkte. Sie können Ihr zu entsorgendes 2SAN Produkt zu Ihrer örtlichen Sammelstelle bringen.

AEEA verklaring

Dutch

Met het doel de stijgende hoeveelheid afgedankte elektrische en elektronische apparatuur te beheersen zonder hiervoor onnodig stortplaatsen en verbrandingsovens te belasten en om de vervuiling van het milieu door vrijkomende stoffen uit de afgedankte apparatuur te voorkomen, heeft de Europese Unie (EU) de richtlijn betreffende afgedankte elektrische en elektronische apparatuur besloten. Deze richtlijn verplicht fabrikanten afgedankte elektrische en elektronische apparatuur in te zamelen, te recycelen en te verwijderen. De lidstaten van de EU hebben reeds de kosteloze recyclesystemen volgens de AEEA vóór de 13 augustus 2005 ingericht. Conform de richtlijn is 2SAN verantwoordelijk voor de verwijdering van alle naar Nederland geëxporteerde 2SAN producten. U kunt uw afgedankt 2SAN product naar uw locale inzamelplaats brengen.

Elektrik ve Elektronik Madde Atıkları Demeci

Turkish

Elektrik ve elektronik madde atıklarının yukselmesiyle basedebilmek ,arazi doldurma ve cop yakma fırını kullanımını azaltmak,atık madde zararlarının çevreye yayılmasını onlemek için Avrupa Birliği (AB),ureticilerden elektrik ve elektronik madde atıklarını gerektiği gibi toplamalarını,geri donusturmelerini ve kimyasal isleme tabi tutmalarını talep etmek için Elektrik ve Elektronik Madde Atıkları uzerine bir direktif hazırladı.Topluluk uyeleri,13 Agustos 2005' ten once elektrik ve elektronik madde atıklarının ucretsiz geri donusum sistemlerini coktan olusturmuslardı.Bundan dolayı, 2SAN, Almanya'ya ihrac ettigi butun urunlerin geri donusumunden sorumludur. 2SAN urunleri geri donusum gerektirirse yerel toplayıcılara geri verebilirsiniz.

Чтобы справиться с увеличивающимся ненужным электрическим и электронным оборудованием, уменьшите использование закапывания мусора и использования установки для сжигания отходов, препятствуйте вредному выбросам загрязнять окружающую среду, Европейский союз (ЕС) установил Директиву по Ненужному Электрическому и Электронному Оборудованию (WEEE) для того, чтобы изготовителей собрали, перерабатывали и вообще проявили внимание к ненужному электрическому и электронному оборудованию должным образом. Члены нации установили бесплатную систему переработки WEEE до 13 августа 2005. Соответственно, 2SAN обязан быть ответственным за то, что переработал все продукты, экспортируемые в Германию. Вы можете вернуть ваш продукт 2SAN, который нуждается в рециркуляции местному сборщику.

WEEE Statement**French**

Afin de gérer la quantité croissante de déchets électriques et électroniques, de réduire l'utilisation des décharges et des incinérateurs et d'éviter que des déchets nocifs ne polluent l'environnement, l'Union Européenne a publié la directive WEEE sur les déchets électriques et électroniques. Celle-ci spécifie que les fabricants doivent collecter, recycler et traiter l'équipement électronique et électrique usagé. Depuis le 13 août 2005, les pays membres ont mis en place un système de recyclage gratuit selon le WEEE.

De ce fait, 2SAN est responsable du recyclage de tous les produits exportés vers l'Allemagne. Vous pouvez mettre au rebut votre équipement 2SAN usagé dans votre centre local de recyclage.

Pour plus d'informations sur les lieux de mise au rebut des équipements usagés destinés au recyclage, veuillez contacter votre mairie, votre service de traitement des déchets ménagers ou le magasin où vous avez acheté le produit.

RAEE**Spanish**

Con la finalidad de reducir el incremento de residuos eléctricos y de material electrónico, reduciendo el uso de los vertederos e incineradoras y prevenir el preocupante aumento del contacto de estos residuos con el medio ambiente. Por este motivo la Unión Europea ha fijado la Directiva de Residuos de Aparatos Eléctricos y Electrónicos (RAEE) solicitando a los fabricantes la recolección, reciclaje y tratamiento de estos residuos correctamente. Los países miembros ya han establecido su sistema de reciclaje gratuito de RAEE antes del 13 de Agosto del 2005. Por este motivo 2SAN es el responsable del reciclaje de todos los productos exportados a Alemania. Usted puede devolver su producto 2SAN a un punto de recogida local cuando desee reciclarlo.

Dichiarazione WEEE**Italian**

Per far fronte all'aumento dei residui delle apparecchiature elettriche ed elettroniche, ridurre l'uso di materiale di riporto e degli inceneritori, ed impedire che il materiale nocivo delle apparecchiature residue entri a contatto con l'ambiente, l'Unione Europea (UE) ha stabilito le Direttive sui Residui delle apparecchiature Elettriche ed Elettroniche (WEEE) chiedendo ai fornitori di raccogliere correttamente, riciclare e trattare le apparecchiature elettriche ed elettroniche residue. Le nazioni facenti parte dell'Unione Europea hanno già stabilito il loro sistema gratuito di riciclaggio di questo materiale (WEEE) prima del 13 agosto 2005. Di conseguenza, 2SAN è responsabile del riciclaggio di tutti i prodotti esportati in Germania. Potete restituire il vostro prodotto acquistato da 2SAN che deve essere riciclato da un'azienda specifica locale.

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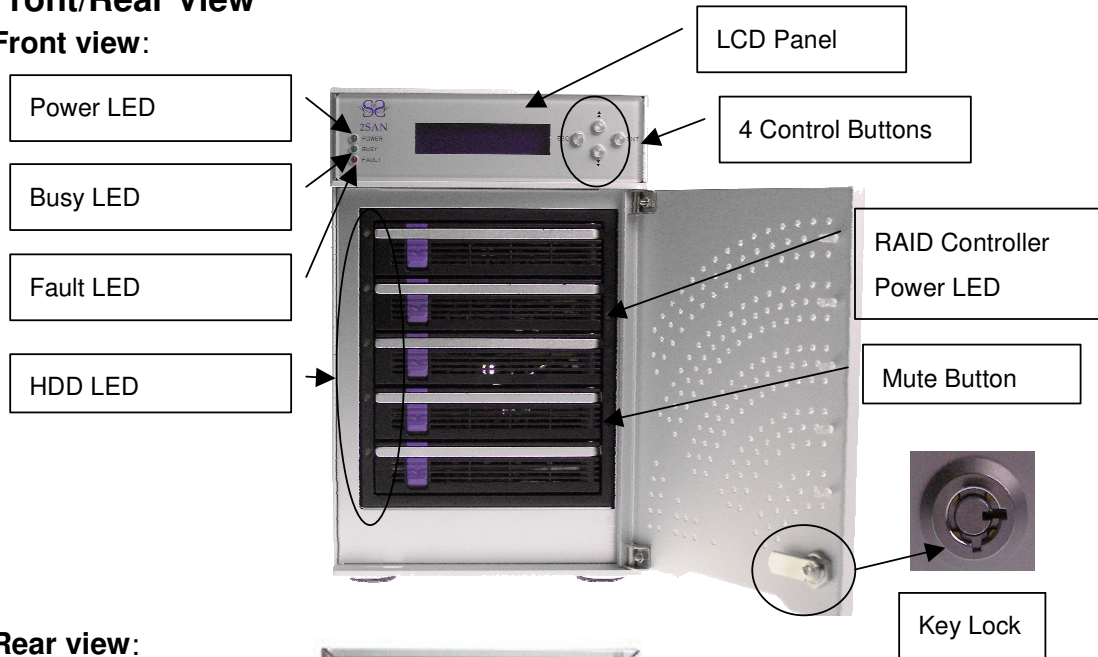
Section 1 Introduction

1.1 Overview

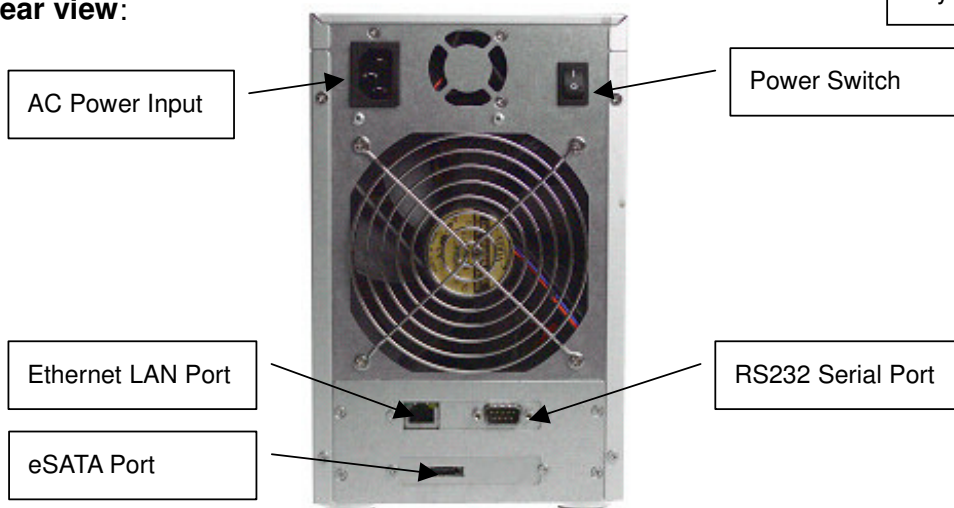
ANS-9050E is specifically designed for personal video/audio editing storage and business RAID storage applications. It features five 3.5inch SATA I/II disk drives with RAID 0,1,5. ANS-9050E is a RAID tower for Mac/PC equipped with eSATA port connected simply via eSATA cable. By simply connecting to its eSATA 3.0 Gbps port, your host platform can freely expand the storage capacity in an extreme bandwidth.

1.2 Front/Rear View

Front view:



Rear view:



1.3 Specification

- Host Interface
 - One 3.0Gbps eSATA port
- Disk Interface
 - Five 3.0Gbps SATA ports (for 3.5" HDDs)
- RAID Functions
 - RAID levels: 0, 1, 5
 - Automatic online background data rebuilding
 - Automatic disk failure detection
 - Supports S.M.A.R.T
 - Array roaming
 - HDD hot-swap (RAID1, 5 only)
 - HDD hot-spare (RAID1, 5 only)
- Management
 - Driverless: need no driver on host side
 - LCD panel for operation status display
 - LED indicators for disk status display
 - RAID level selection and configuration by LCD panel or UART/ Web console
 - NVRAM for transaction log, event log and system configuration settings
 - Event notification by audible alarm
 - Fan, voltage and system temperature monitoring
 - RS232/Ethernet port for either configuration through VT100 Console or Web management through HTTP Browser

1.4 Package & Component

Items	Quantity
ANS-9050E	1
Removable tray	5
Power cord	1
eSATA cable	1
External RS-232 cable	1
Accessories bag (screws & 1 key)	1
Quick Guide	1

Section 2 Installation

2.1 Install the Hard Drives

Follow the steps below to install the hard drives into the trays of ANS-9050E.

(1) Unlock with the enclosed key, and open the front door.



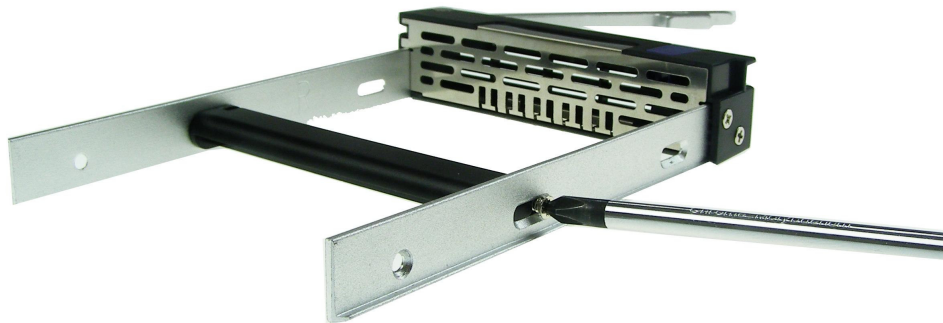
(2) Open the tray by pushing the blue fastener downward.



(3) Pull the lever with the tray out.



(4) Unfasten the 2 screws supporting the tray protector.



(5) Remove the tray protector.



(6) Place the hard drive into the tray and fasten with 4 screws.



(7) Slide the tray into ANS-9050E.



(8) Push the lever and fasten.



- (9) Repeat step 2 to 8 for installing the rest hard drives.
- (10) Close the door and lock.



2.2 Connect ANS-9050E to Computer

Computer requirement:

- (1) A free eSATA port
- (2) A free RS-232/UART port (manages ANS-9050E via terminal) or both of IP address and LAN access (manages ANS-9050E via web browser).

2.2.1 Install ANS-9050E

- (1) Insert one end of the eSATA cable into the eSATA port of the computer.



(2) Insert the other end of the eSATA cable into the eSATA port of ANS-9050E.



(3) Connect one end of RS-232 cable to the UART port of the computer.



(4) Connect the other end of RS-232 cable to the UART port of ANS-9050E.



(5) Connect an Ethernet cable to the LAN port of ANS-9050E.



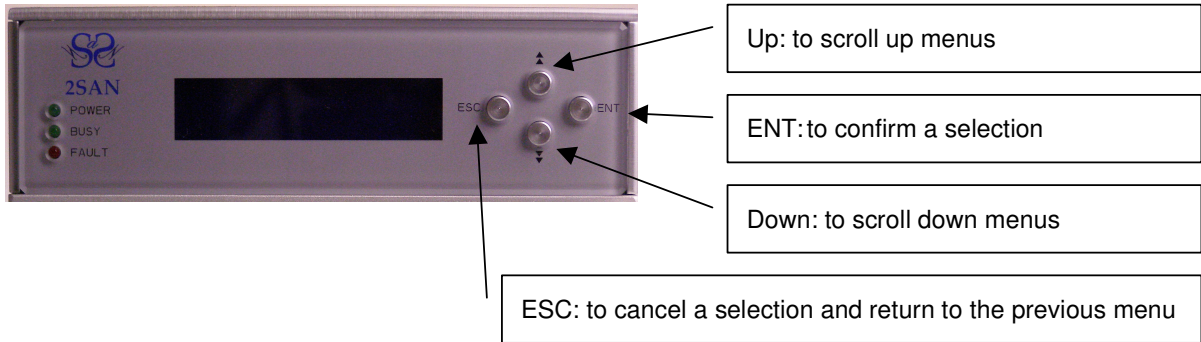
(6) Connect the power cord to ANS-9050E.



Note: Follow step 3 to 5 only when you use either RS-232 or LAN port to manage ANS-9050E. Please refer to section 6 “Quick Start” for fast configuration.

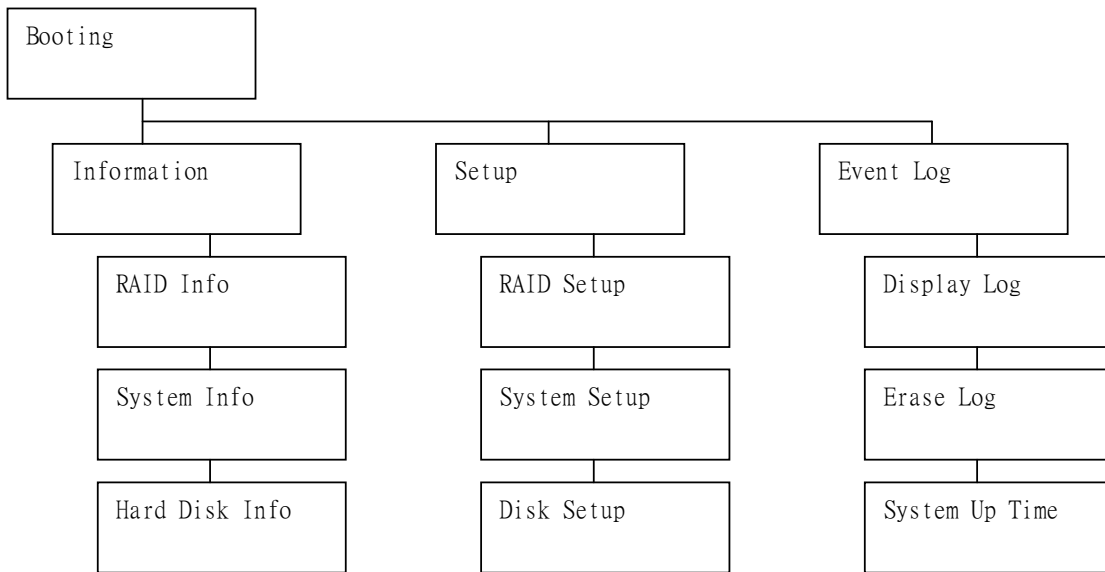
Section 3 The LCD Control Panel

3.1 Keys and Functions

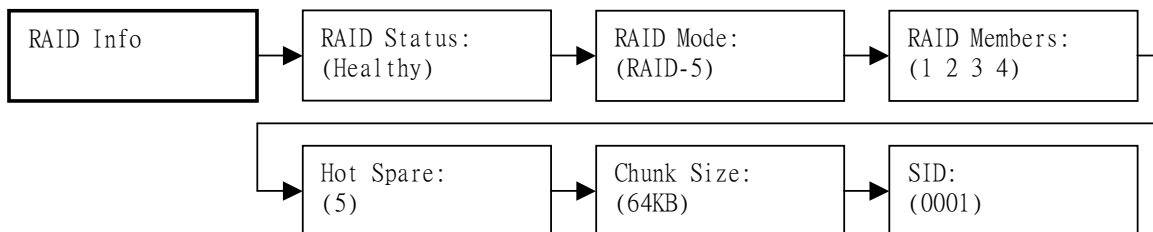


3.2 LCD Configuration Chart

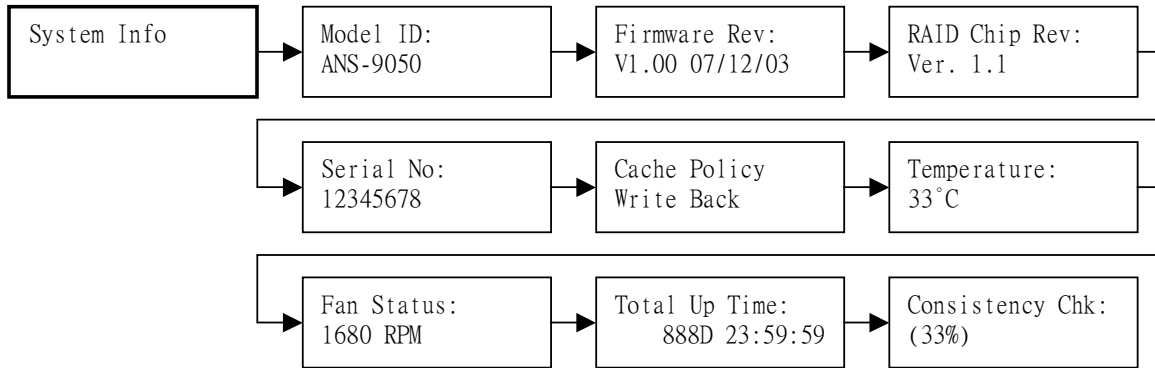
There are 3 major function menus in ANS-9050E as the following charts show in the pages below.



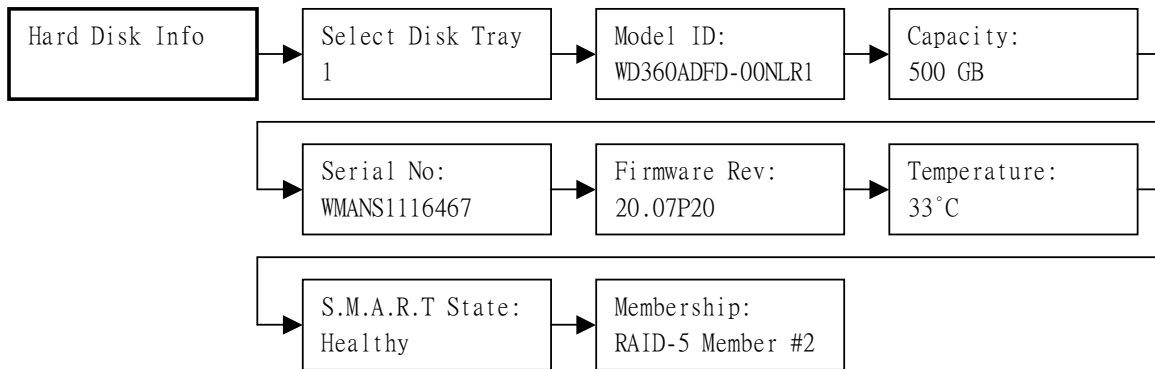
1.



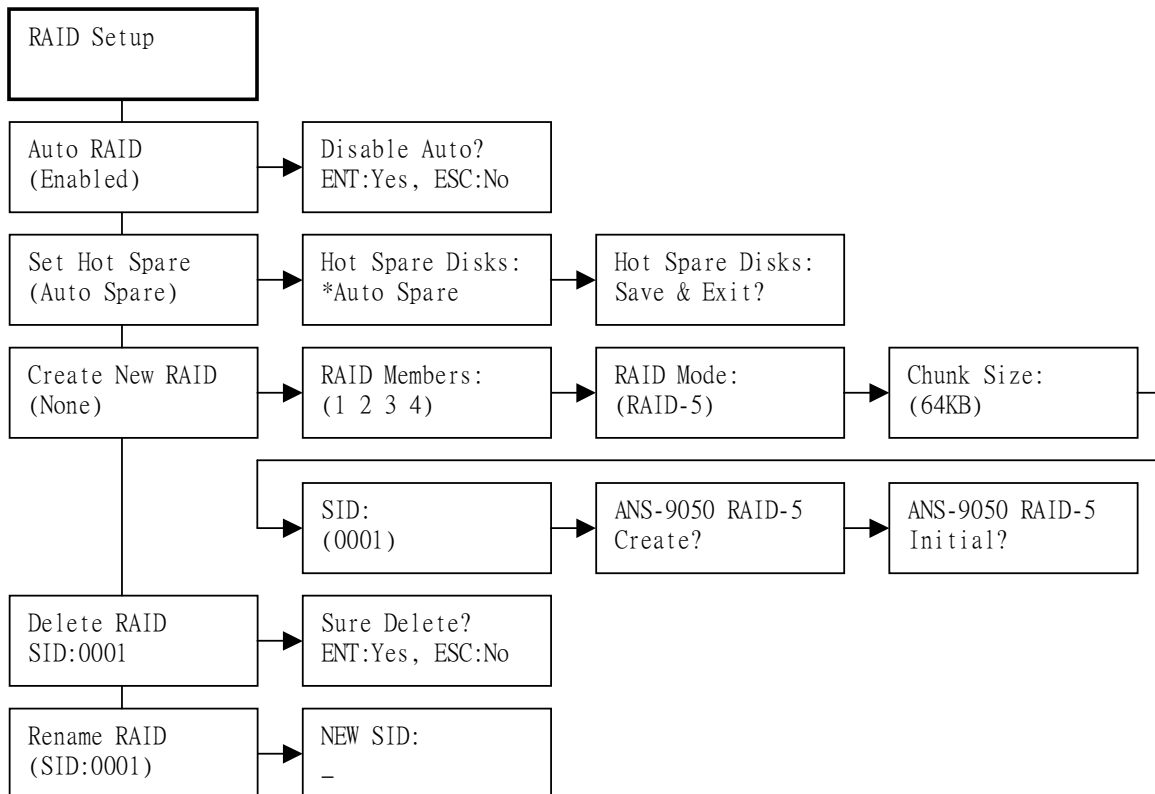
2.



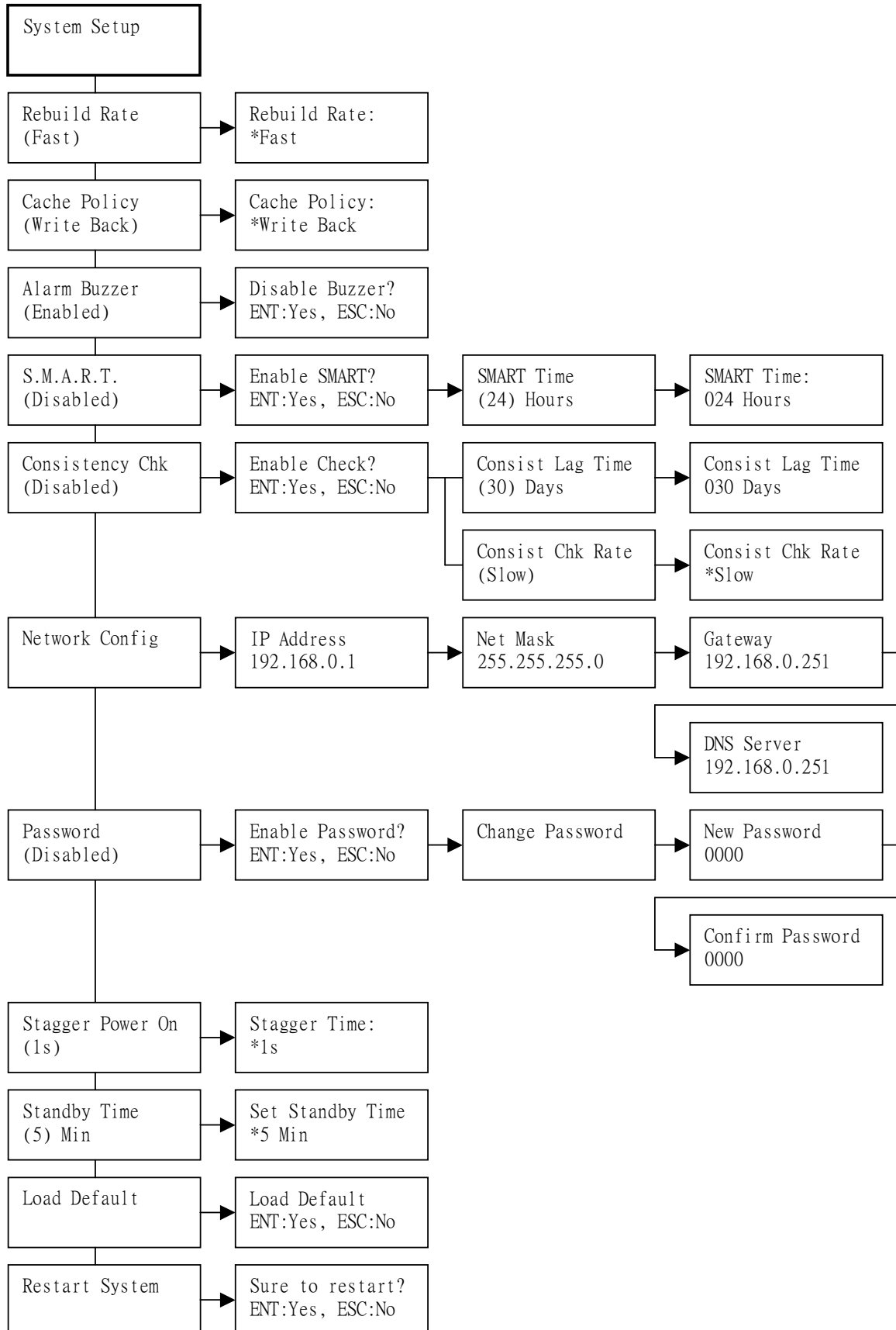
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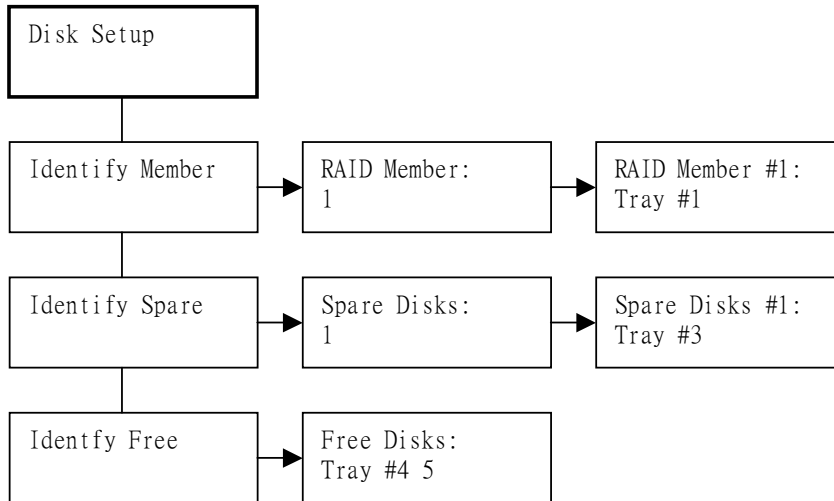
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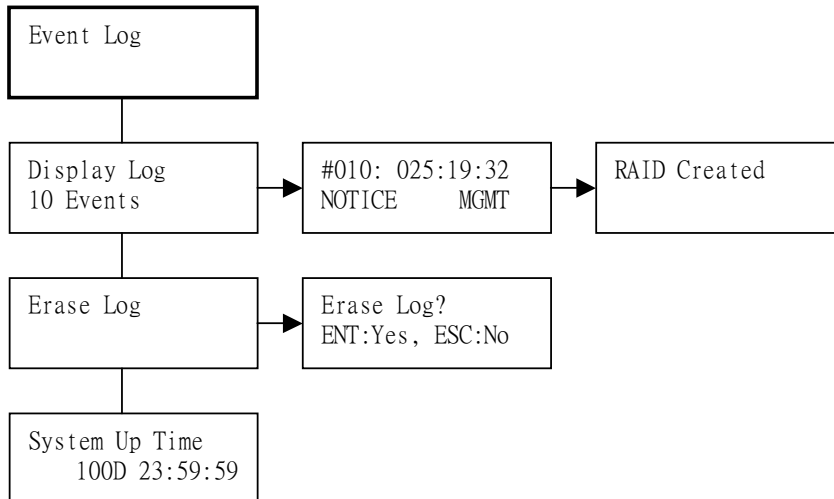
5.



6.



7.



3.3 LCD Configuration Menu

Read the following instructions before operating:

1. RAID Info

It is to show the details of a RAID set such as: RAID status, RAID mode, RAID member, hot spare disk, chunk size and system identify number (SID).

2. System Info

2.1 Model ID: to show the model ID: ANS-9050.

2.2 Firmware Rev: to show the current firmware version.

2.3 RAID Chip Rev: to show the version of the RAID chipset.

2.4 Serial No: to show the unique number of each ANS-9050E.

- 2.5 Cache Policy:** to show if current cache policy is write back or write through
- 2.6 Temperature:** to show the temperature of ANS-9050E.
- 2.7 Fan Status:** to show the fan rotating speed.
- 2.8 Total Up Time:** to show the amount of working hours since first power on.
- 2.9 Consistency Chk:** to show the consistency check status once it is enabled.

3. Disk Info

It is to show the details of each hard drive such as model, capacity, serial number, firmware version, temperature, S.M.A.R.T status and membership.

4. RAID Setup

- 4.1 Auto RAID:** after power on, ANS-9050E will search all free hard drives and ask for automatic RAID creation. The Auto RAID parameters are: RAID5, 64KB Chunk size, SID=0001.
- 4.2 Create New RAID:** to create a new RAID volume manually. Here you need to select RAID Members, RAID Mode, Chunk size and SID to create.
 - RAID Member: to select hard drives for the RAID set.
 - RAID Mode: the options are RAID0, RAID1 and RAID5
 - Chunk Size: to set the size of segment written to each disk in the logical RAID drive.
 - SID: represents System Identify number. It helps you easily identify each ARS-9050E.
- 4.3 Set Hot Spare:** to set a hard drive as spare disk. Once a RAID5/RAID1 member is damaged, the spare disk can replace it.
- 4.4 Delete RAID:** to delete an existing RAID set.
- 4.5 Rename RAID:** to change the SID of a RAID set.

5. System Setup

- 5.1 Rebuild Rate:** ANS-9050E allows you to set rebuilding rate to balance the foreground host-service tasks and background rebuilding process.
- 5.2 Cache Policy:** like a normal hard drive, the ANS-9050E has a cache to speed up data access by setting cache policy as write back. It can also be set as write through mode for high data security applications.
- 5.3 Alarm Buzzer:** to enable or disable alarm buzzer whenever a critical event occurs.
- 5.4 S.M.A.R.T.:** to enable or disable hard disk S.M.A.R.T. status polling. The range of SMART polling time is from 1 to 720 hours. The default is 24 hours
- 5.5 Consistency Chk:** to enable or disable the RAID consistency checking. The consistency check represents a process that verifies all physical sectors of

RAID1 or RAID5 drives to make sure there is no bad sector in all drives. Whenever a bad sector is found during consistency check, ANS-9050 will automatically recover the data of the bad sector by reading the redundant/parity disk. The range of consistency checking time is from 1 to 999 days. The default is 30 days.

5.6 Network Config: to set the IP address, Net Mask, Gateway and DNS Server for you to manage the RAID status via the web browser.

5.7 Password: to enable or disable password protection. You can enable it with a fourdigit number. The default is 0000.

Note: The password here is a protection for the usage of LCD management. It is different to the one for Web management.

5.8 Stagger Power On: a transient current from spinning up all drives at once might overload the power supply, damaging the power, drives or other system components. However, ANS-9050E supports the Stagger Power On, which allows the host to stagger the spin-up of all drives. New SATA drives also support staggered spin-up to boost reliability. Staggered spin-up is useful in managing multiple drives in a storage subsystem. It enables the host to spin up the drives sequentially or in-group, allowing the drives to come ready at the optimum time without straining the system power supply.

5.9 Standby Time: to set the time for system to return to standby mode.

5.10 Load Default: to reset all settings back to default.

Note: All settings including password and network configuration will be reset to default value. And event logs will be erased, too.

5.11 Restart System: to restart the System.

6. Disk Setup

6.1 Identify Member: to show each hard drive's role in the RAID set.

6.2 Identify Spare: to show the spare disk in the RAID set.

6.3 Identify Free: to show the free disk in the ANS-9050E.

7. Event Log

7.1 Display Log: to show all critical events in ANS-9050E.

7.2 Erase Log: to clear all events.

7.3 System Up Time: to show the amount of working hours since power on.

Section 4 The Status Indicators

There are many LED indicators in ANS-9050E. They represent the following statuses:

LCD Module

Indicators	Description
Power LED	Steady green: power on
Busy LED	Blinking green: data access
Fault LED	Steady red: RAID damaged / RAID uncreated Blinking red: RAID degraded / fan failed / high temperature

RAID Subsystem

Indicators	Description
RAID Controller Power LED	Steady green: power on
HDD LED	1. No light: disk not detected / disk not installed 2. Steady amber: free disk / spare disk 3. Blinking green: disk access 4. Steady green: member disk 5. Blinking red: disk bad sector / disk SMART failed / data rebuilding 6. Steady red: disk damaged / disk removed

Note: The buzzer will beep when a problem occur. Press LCD key or mute button to stop beeping, and examine in Event log.

Section 5 The Web Management Utility

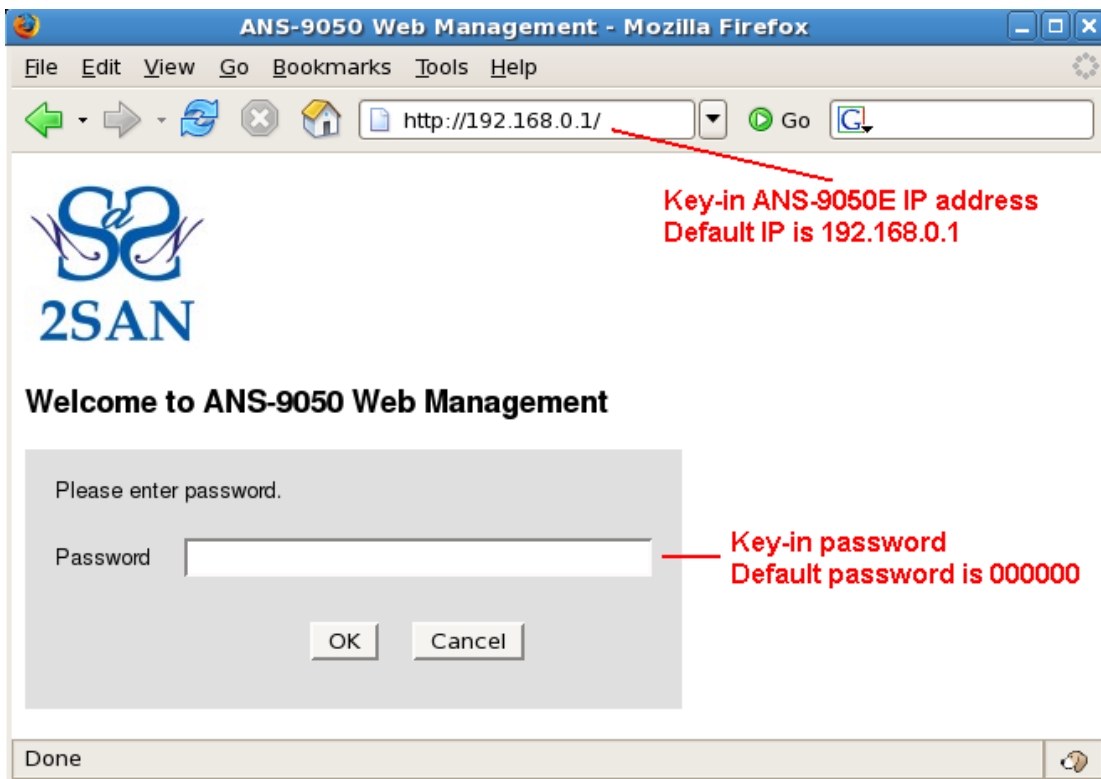
ANS-9050E provides a web browser-based management utility, which allows you to monitor the disk/RAID/hardware status in ANS-9050E. Furthermore, it allows you to update firmware easily. Follow the instructions below for operating reference.

5.1 Login Management Utility

1. Give ANS-9050E a proper/available IP address via the LCD UI management.
2. Connect an Ethernet cable to the LAN port of ANS-9050E.
3. Open the web browser such as Windows Internet Explorer, Mozilla Firefox or Macintosh Safari.
4. Enter http:// and [IP address] in the web browser.
5. Enter the password to login web management
(the default password is 000000)

Note: You must login as administrator with local admin rights on the remote machine to configure ANS-9050E.

The login page:

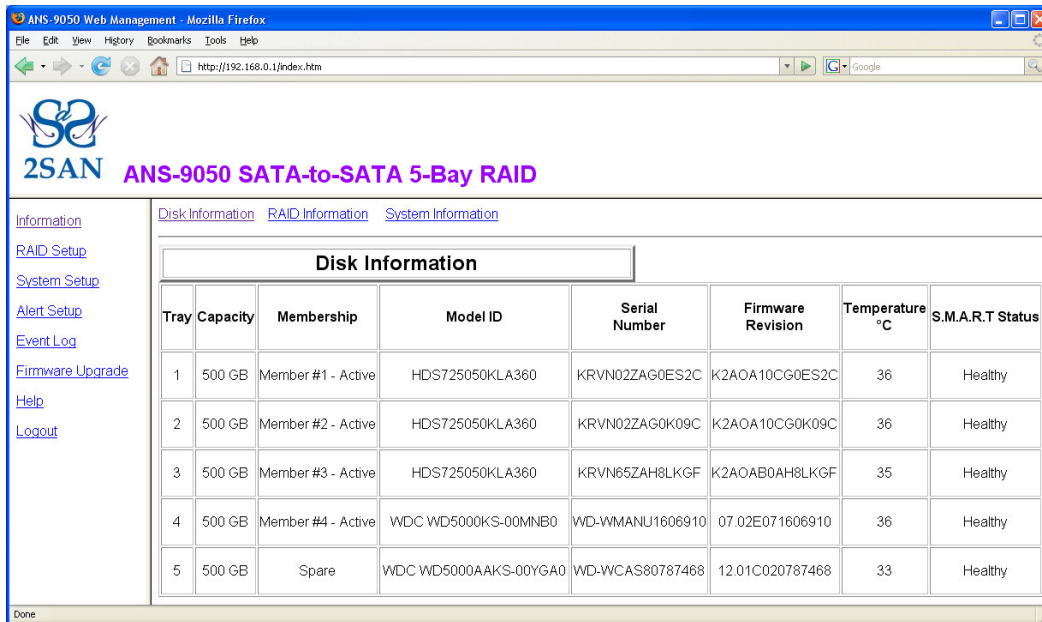


After login, you will see functions such as Information, RAID Setup, System Setup, etc. Refer to the following chapters for operating instructions.

5.2 Information

5.2.1 Disk Information

It is to show the details of each hard drive such as model, capacity, serial number, firmware version, temperature, S.M.A.R.T status and membership.



ANS-9050 Web Management - Mozilla Firefox

http://192.168.0.1/index.htm

2SAN ANS-9050 SATA-to-SATA 5-Bay RAID

Information RAID Setup System Setup Alert Setup Event Log Firmware Upgrade Help Logout

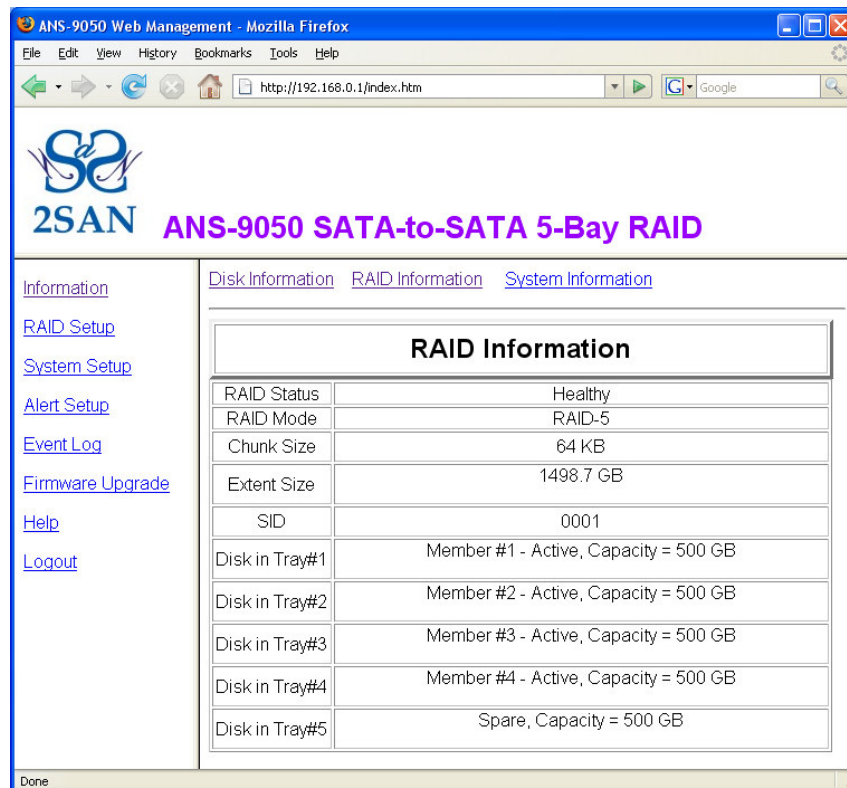
Disk Information RAID Information System Information

Tray	Capacity	Membership	Model ID	Serial Number	Firmware Revision	Temperature °C	S.M.A.R.T Status
1	500 GB	Member #1 - Active	HDS725050KLA360	KRVN02ZAG0ES2C	K2AOA10CG0ES2C	36	Healthy
2	500 GB	Member #2 - Active	HDS725050KLA360	KRVN02ZAG0K09C	K2AOA10CG0K09C	36	Healthy
3	500 GB	Member #3 - Active	HDS725050KLA360	KRVN65ZAH8LKGF	K2AOAB0AH8LKGF	35	Healthy
4	500 GB	Member #4 - Active	WDC WD5000KS-00MNB0	WD-WMANU1606910	07.02E071606910	36	Healthy
5	500 GB	Spare	WDC WD5000AAKS-00YGA0	WD-WCAS80787468	12.01C020787468	33	Healthy

Done

5.2.2 RAID Information

It is to show the details of a RAID set such as: RAID status, RAID mode, RAID member, hot spare disk, chunk size and system identify number (SID).



ANS-9050 Web Management - Mozilla Firefox

http://192.168.0.1/index.htm

2SAN ANS-9050 SATA-to-SATA 5-Bay RAID

Information RAID Setup System Setup Alert Setup Event Log Firmware Upgrade Help Logout

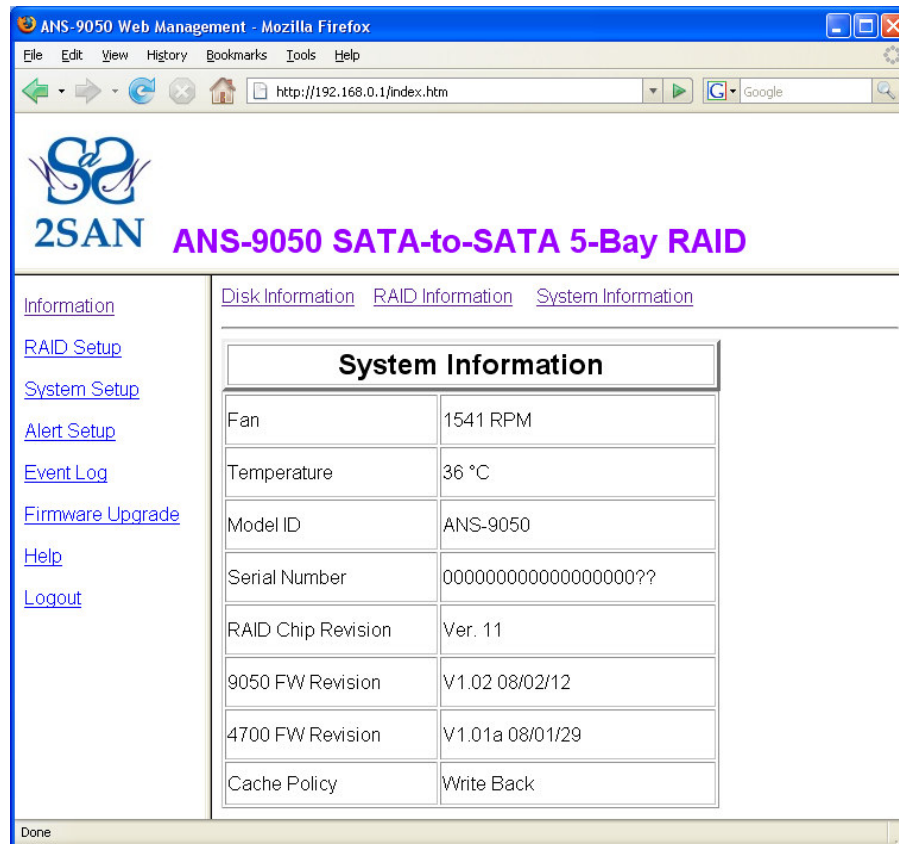
Disk Information RAID Information System Information

RAID Information	
RAID Status	Healthy
RAID Mode	RAID-5
Chunk Size	64 KB
Extent Size	1498.7 GB
SID	0001
Disk in Tray#1	Member #1 - Active, Capacity = 500 GB
Disk in Tray#2	Member #2 - Active, Capacity = 500 GB
Disk in Tray#3	Member #3 - Active, Capacity = 500 GB
Disk in Tray#4	Member #4 - Active, Capacity = 500 GB
Disk in Tray#5	Spare, Capacity = 500 GB

Done

5.2.3 System Information

In System Information, it shows the model, serial number, RAID chipset revision, ANS-9050E firmware, 4700 (web management) firmware revision, and cache policy.



5.3 RAID Setup

In RAID Setup, it allows you to enable/disable auto RAID function, create RAID and delete RAID.

5.3.1 Auto RAID

After power on, ANS-9050E will search all free hard drives and ask for automatic RAID creation. The Auto RAID parameters are:

RAID Member: 1, 2, 3, 4, 5 (all available HDDs)

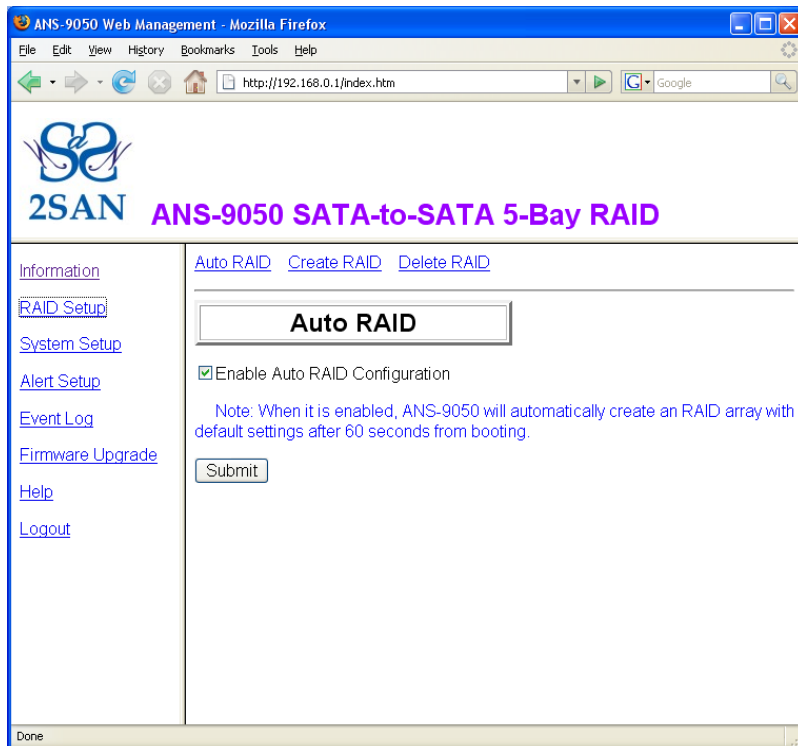
RAID Mode: RAID 5

Chunk Size: 64KB

RAID Capacity: Maximum available size up to 2TB.

SID: 0001

PS: If the amount of available HDDs is less than 3, it will create RAID 0 instead.



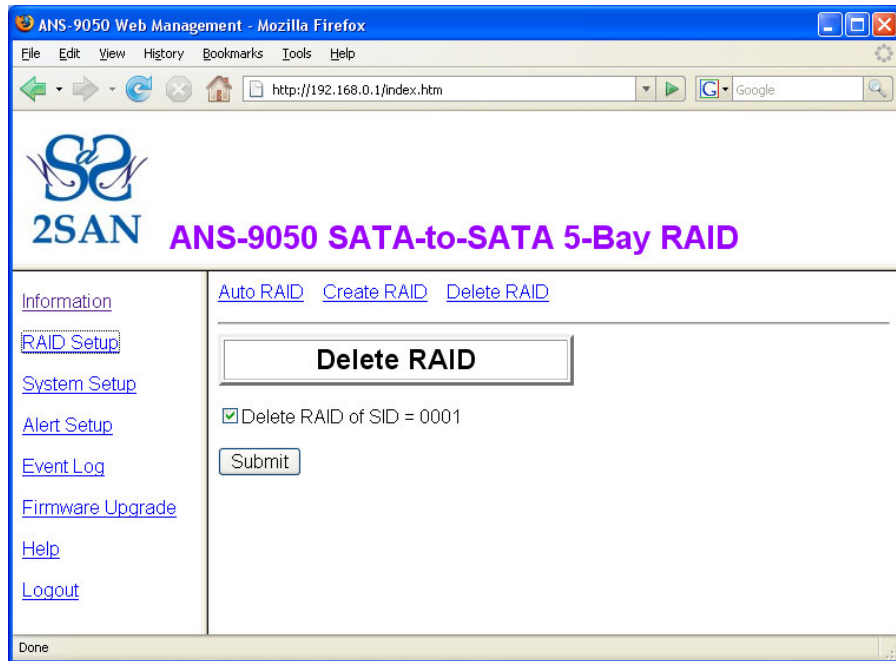
5.3.2 Create RAID

To create a new RAID volume manually, you need to select RAID Members, RAID Mode, Chunk size and SID to create.

PS: 2TB Limited function is to limit the RAID size within 2TB for operating systems that do not support hard disk drive over than 2TB.

5.3.3 Delete RAID

It is to delete an existing array. Before deleting, please backup important data in RAID disks.

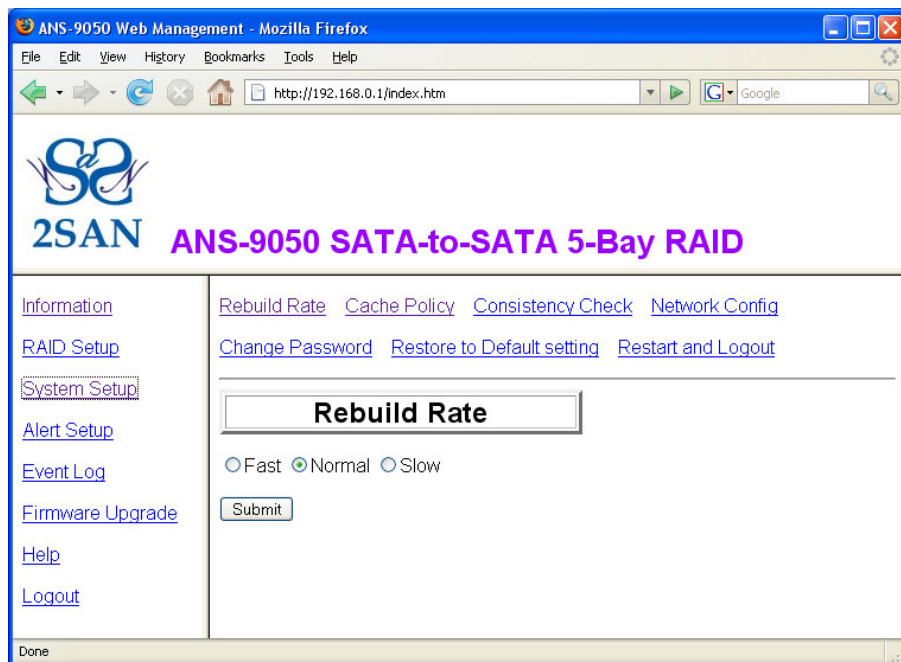


5.4 System Setup

It allows you to set rebuild rate, cache policy, consistency check, network configuration, password, restart system and restore default setting.

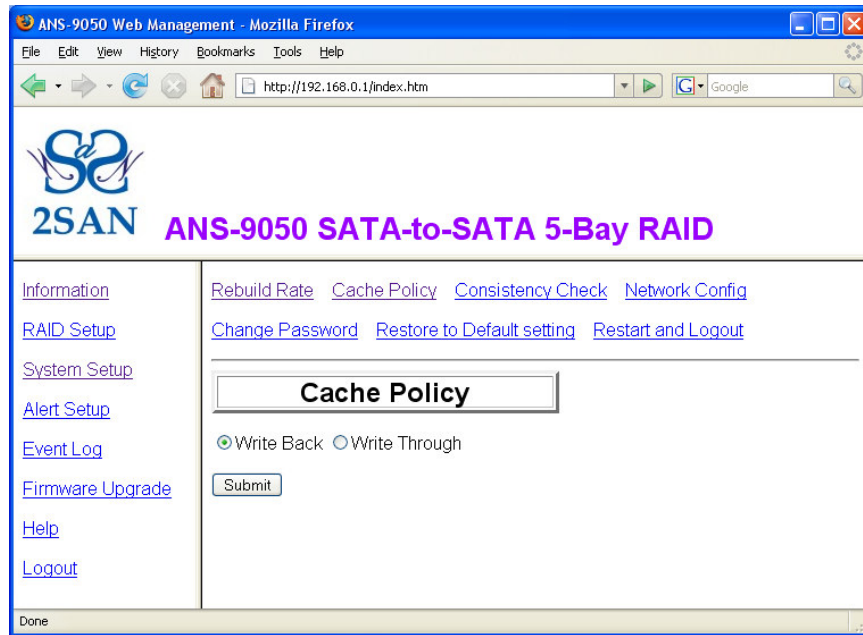
5.4.1 Rebuild Rate

ANS-9050E allows you to set rebuilding rate to balance the foreground host-service tasks and background rebuilding process.



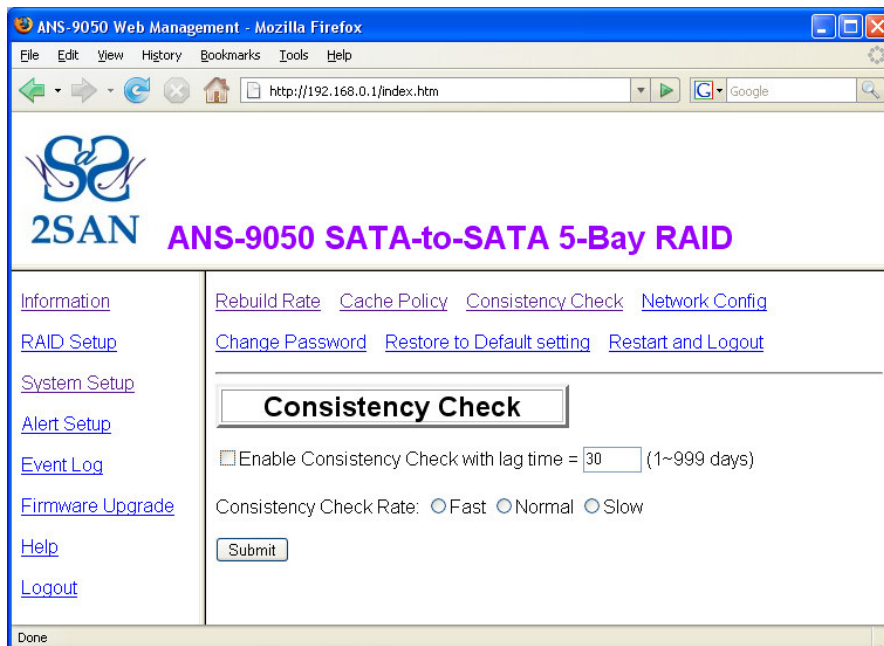
5.4.2 Cache Policy

Like a normal hard drive, the ANS-9050E has a cache to speed up data access by setting cache policy as write back. It can also be set as write through mode for high data security applications.



5.4.3 Consistency Check

The consistency check represents a process that verifies all physical sectors of RAID1 or RAID5 drives to make sure there is no bad sector in all drives. Whenever a bad sector is found during consistency check, ANS-9050 will automatically recover the data of the bad sector by reading the redundant/parity disk. The range of consistency checking time is from 1 to 999 days. The default is 30 days.



5.4.4 Network Config.

It is to set the IP address, Net Mask, Gateway and DNS Server for you to manage the RAID status via the web browser.

The screenshot shows the 'ANS-9050 Web Management - Mozilla Firefox' window. The address bar shows 'http://192.168.0.1/index.htm'. The page title is '2SAN ANS-9050 SATA-to-SATA 5-Bay RAID'. On the left, there is a navigation menu with links: Information, RAID Setup, System Setup, Alert Setup, Event Log, Firmware Upgrade, Help, and Logout. The main content area has a top navigation bar with links: Rebuild Rate, Cache Policy, Consistency Check, Network Config, Change Password, Restore to Default setting, and Restart and Logout. Below this, the 'Network Config' section contains a form with the following fields:

IP Address:	192	168	0	1
Subnet Mask:	255	255	255	0
Default Gateway:	192	168	0	251
DNS Server:	192	168	0	251

Below the form are 'Submit' and 'Cancel' buttons.

5.4.5 Change Password

The default password is 000000. You can change a new one by giving it a 6-12 digits.

Note: The password here is a protection for the usage of web management. It is different to the one for LCD management.

The screenshot shows the 'ANS-9050 Web Management - Mozilla Firefox' window. The address bar shows 'http://192.168.0.1/index.htm'. The page title is '2SAN ANS-9050 SATA-to-SATA 5-Bay RAID'. On the left, there is a navigation menu with links: Information, RAID Setup, System Setup, Alert Setup, Event Log, Firmware Upgrade, Help, and Logout. The main content area has a top navigation bar with links: Rebuild Rate, Cache Policy, Consistency Check, Network Config, Change Password, Restore to Default setting, and Restart and Logout. Below this, the 'Change Password' section contains a form with the following fields:

New Password: (The length of new password is 6~12.)

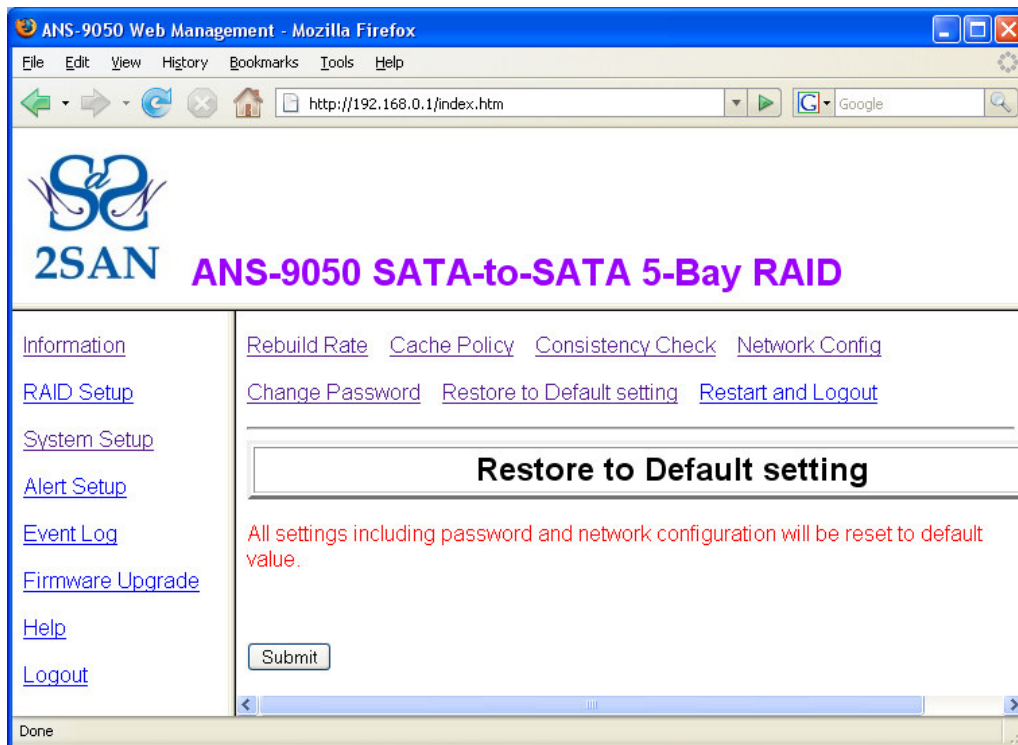
Confirm Password:

Below the form is a 'Submit' button.

5.4.6 Restore to Default setting

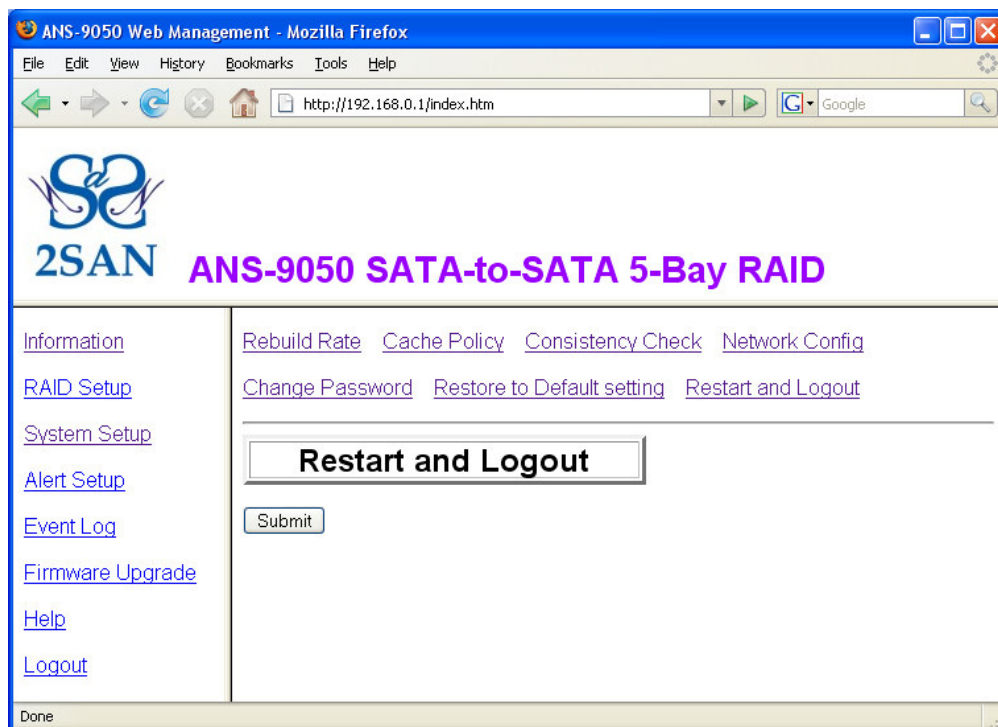
It is to reset all settings back to default.

Note: All settings including password and network configuration will be reset to default value. And event logs will be erased, too.



5.4.7 Restart and Logout

To restart the ANS-9050E system and logout web management

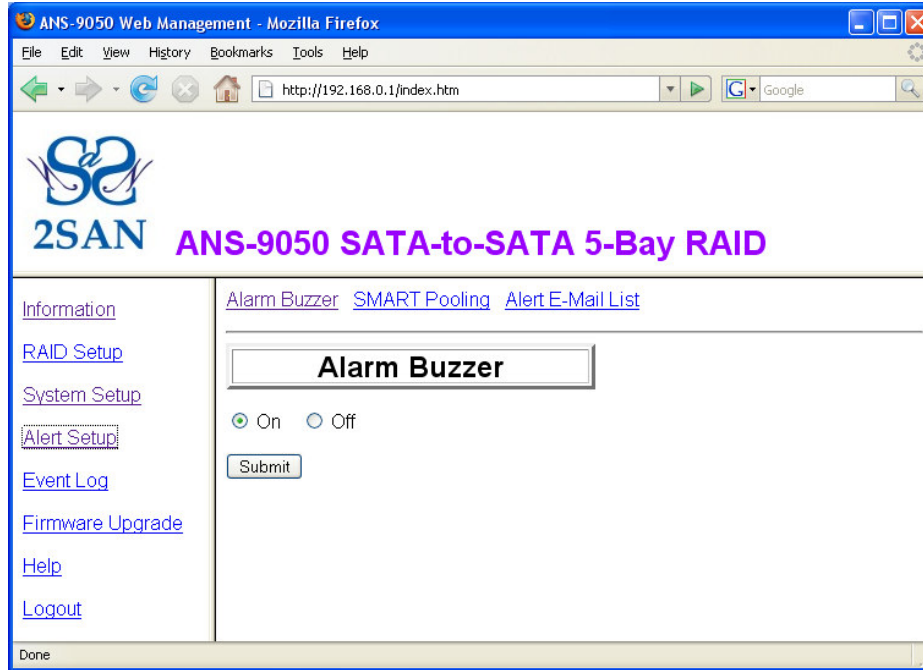


5.5 Alert Setup

There are alarm buzzer, S.M.A.R.T. polling and alert email list settings in this function.

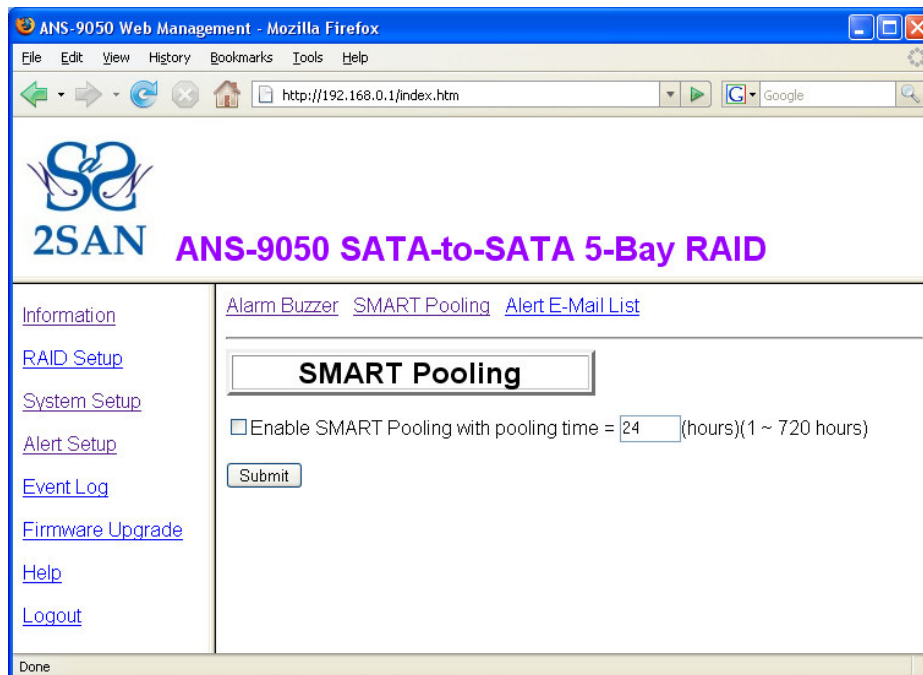
5.5.1 Alarm Buzzer

It allows you to enable or disable alarm buzzer whenever a critical event occurs.



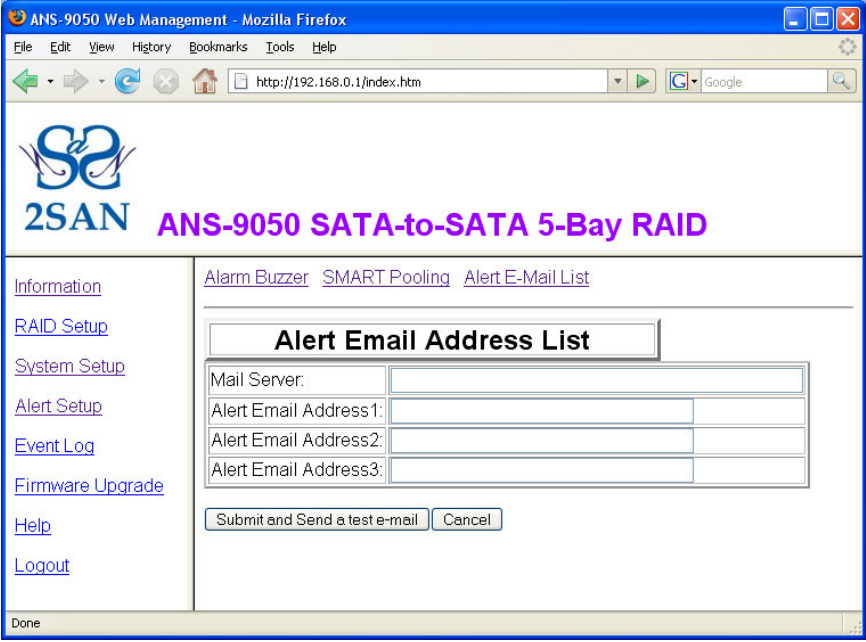
5.5.2 SMART Polling

It allows you to enable or disable hard disk S.M.A.R.T. status polling. The range of SMART polling time is from 1 to 720 hours. The default is 24 hours



5.5.3 Alert E-Mail List

The ANS-9050E provides an email notification function. Whenever a critical event occurred, it will send a warning email to the given email address.



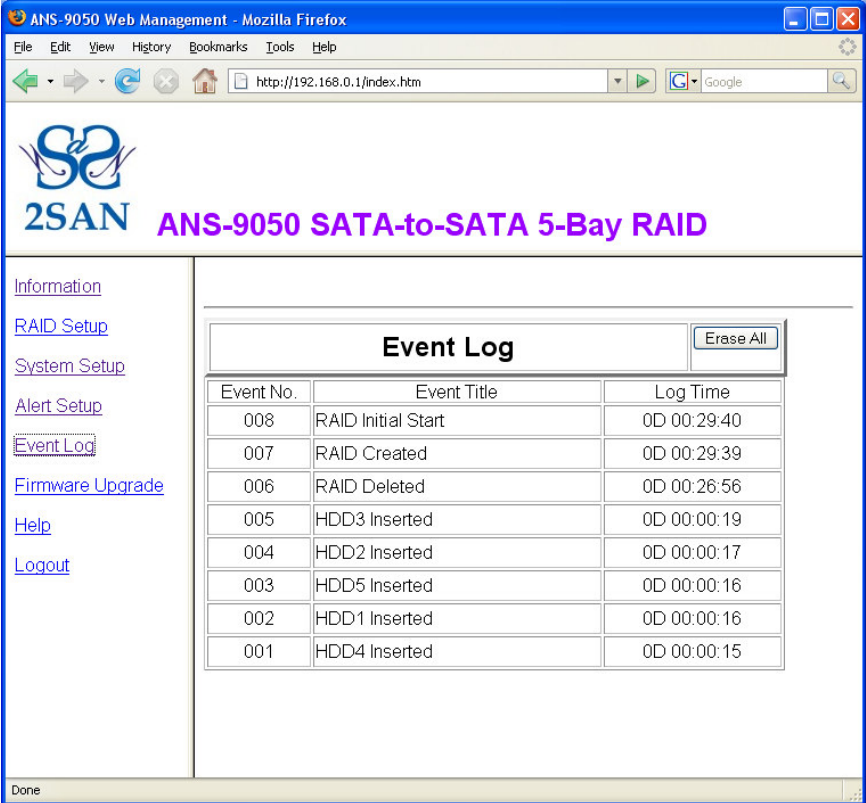
The screenshot shows the 'Alert E-Mail List' configuration page in the ANS-9050 Web Management interface. The page has a sidebar with links: Information, RAID Setup, System Setup, Alert Setup, Event Log, Firmware Upgrade, Help, and Logout. The main content area is titled 'Alert Email Address List' and contains the following form:

Mail Server:	
Alert Email Address1:	
Alert Email Address2:	
Alert Email Address3:	

Below the form are two buttons: 'Submit and Send a test e-mail' and 'Cancel'.

5.6 Event Log

It allows user to check events and its occurred time. It also allows user to erase event logs by clicking "Erase All".



The screenshot shows the 'Event Log' page in the ANS-9050 Web Management interface. The page has a sidebar with links: Information, RAID Setup, System Setup, Alert Setup, Event Log, Firmware Upgrade, Help, and Logout. The main content area is titled 'Event Log' and contains a table of events. There is an 'Erase All' button in the top right corner of the table area.

Event No.	Event Title	Log Time
008	RAID Initial Start	0D 00:29:40
007	RAID Created	0D 00:29:39
006	RAID Deleted	0D 00:26:56
005	HDD3 Inserted	0D 00:00:19
004	HDD2 Inserted	0D 00:00:17
003	HDD5 Inserted	0D 00:00:16
002	HDD1 Inserted	0D 00:00:16
001	HDD4 Inserted	0D 00:00:15

5.7 Firmware Upgrade

Follow the procedures below to upgrade the firmware of ANS-9050E.

1. Click “Firmware Upgrade”.



ANS-9050 SATA-to-SATA 5-Bay RAID

Information	Disk Information	RAID Information	System Information
RAID Setup			
System Setup			
Alert Setup			
Event Log			
Firmware Upgrade			
Help			
Logout			

Disk Information							
Tray	Capacity	Membership	Model ID	Serial Number	Firmware Revision	Temperature °C	S.M.A.R.T Status
1	37 GB	Member #1 - Active	WDC WD360ADFD-00NLR1	WD-WMANT1026357	20.07P20	36	Healthy
2	400 GB	Member #2 - Active	ST3400832AS	3NF0VGW1	3.03	39	Healthy
3	500 GB	Member #3 - Active	WDC WD5000KS-00MNB0	WD-WMANU1606910	07.02E07	43	Healthy

2. Click “Browse...” and locate the firmware file.

Information	Upgrade RAID Subsystem Firmware Enter Firmware File Name: /9050/RaidEng.srec Browse... Submit Reset Upgrade Progress :
RAID Setup	
System Setup	
Alert Setup	
Event Log	
Firmware Upgrade	
Help	
Logout	

3. Click “Submit” to upgrade firmware.
4. Wait until the progress ends.

Upgrade Progress :

Please wait ! Upgrade will take a few minutes ____

5. Restart ANS-9050E to activate the new firmware.

Upgrade Successfully!!

Section 6 Quick Start

After hardware installation, let the RAID controller automatically create RAID array with default setting, or create a new array with your own setting. There are step by step procedures to show you how to create Auto RAID, create 5HDD RAID5, create 4HDD RAID5 with 1 spare HDD, create 5HDD RAID0, create 2HDD RAID1, Delete RAID, disable Auto Spare, set IP address, check HDD S.M.A.R.T status and check event logs.

6.1 Auto RAID creation sequence

1. Power on ANS-9050E. ANS-9050E is booting.

Booting...

2. Auto Create selection.

ANS-9050 RAID-?
Auto Create?(60)

3. Press ENT. It will create an array with the following parameters:

RAID Member: 1, 2, 3, 4, 5 (all available HDDs)
RAID Mode: RAID 5
Chunk Size: 64KB
RAID Capacity: Maximum available size up to 2TB.
SID: 0001

PS: If the amount of available HDDs is less than 3, it will create RAID 0 instead.

6.2 5HDD RAID5 creation sequence

1. Press ESC to cancel RAID auto creation mode.

ANS-9050 RAID-?
5 Disks! Setup?

2. Press ENT to setup.

Create New RAID

3. Press ENT to create a new RAID. The defaults Members are all available HDDs.
Press Down to continue.

RAID Members:
(1 2 3 4 5)

4. The default RAID Mode is RAID 5. Press Down to continue.

RAID Mode:
RAID-5

5. The default Chunk Size is 64KB. Press ENT to change chunk size or press Down to continue.

Chunk Size:
(64KB)

6. The default SID is 0001. Press ENT to change SID or press Down to complete RAID parameter setting.

SID:
(0001)

7. Press ENT to confirm or press ESC to cancel.

ANS-9050 RAID-5
Create?

8. The function "Force Size 2TB" is designed to limit the RAID size within 2TB for operating systems that do not support hard disk drive over than 2TB. Press ENT to confirm or press ESC to use full available capacity. If the total available capacity is less than 2TB, this function will be hidden.

Force Size 2TB?
ENT:Yes, ESC:No

9. Press ENT to begin RAID initialize or press ESC to skip RAID initialize.

ANS-9050 RAID-5
SID:0001 Init?

6.3 4HDD RAID5 with 1 spare HDD creation sequence

1. Press ESC to cancel RAID auto creation mode.

ANS-9050 RAID-?
5 Disks! Setup?

2. Press ENT to setup.

Create New RAID

3. Press ENT to create a new RAID. The defaults Members are all HDDs.

RAID Members:
(1 2 3 4 5)

Press ENT to enter member selection.

RAID Members Sel
*1

Press Down to select HDD and press ENT to set/clear member HDD.

RAID Members Sel
5

Press Down to confirm page.

RAID Members Sel
Save & Exit?

Press ENT to save changes or ESC to cancel.

RAID Members Sel
(1 2 3 4)

4. The default RAID Mode is RAID5. Press ENT to continue.

RAID Mode:
(RAID-5)

5. The default Chunk Size is 64KB. Press ENT to change chunk size or press Down to continue.

Chunk Size:
(64KB)

6. The default SID is 0001. Press ENT to change SID or press Down to complete RAID parameter setting.

SID:
(0001)

7. Press ENT to confirm or press ESC to cancel.

ANS-9050 RAID-5
Create?

8. The function “Force Size 2TB” is designed to limit the RAID size within 2TB for operating systems that do not support hard disk drive over than 2TB. Press ENT to confirm or press ESC to use full available capacity. If the total available capacity is less than 2TB, this function will be hidden.

Force Size 2TB?
ENT:Yes, ESC:No

9. Press ENT to begin RAID initialize or press ESC to skip RAID initialize.

```
ANS-9050  RAID-5
SID:0001  Init?
```

After that, the HDD1~HDD4 will be created as RAID5 members and HDD5 will be automatically set as spare HDD.

6.4 5HDD RAID0 creation sequence

1. Press ESC to cancel RAID auto creation mode.

```
ANS-9050  RAID-?
5 Disks!  Setup?
```

2. Press ENT to setup.

```
Create New RAID
```

3. Press ENT to create a new RAID. The defaults Members are all available HDDs.
Press Down to continue.

```
RAID Members:
(1 2 3 4 5)
```

4. The default RAID Mode is RAID5. Press ENT to enter RAID mode selection.

```
RAID Mode:
(RAID-5)
```

Press ENT to change RAID mode to RAID 0.

```
RAID Mode Sel:
0
```

Press Down to continue.

```
RAID Mode:
(RAID-0)
```

5. The default Chunk Size is 64KB. Press ENT to change chunk size or press Down to continue.

```
Chunk Size:
(64KB)
```

6. The default SID is 0001. Press ENT to change SID or press Down to complete RAID parameter setting.

```
SID:
(0001)
```

7. Press ENT to confirm or press ESC to cancel.

```
ANS-9050  RAID-0
Create?
```

8. The function “Force Size 2TB” is designed to limit the RAID size within 2TB for operating systems that do not support hard disk drive over than 2TB. Press ENT to confirm or press ESC to use full available capacity. If the total available capacity is less than 2TB, this function will be hidden.

```
Force Size 2TB?
ENT:Yes, ESC:No
```

9. Press ENT to begin RAID initialize or press ESC to skip RAID initialize

```
ANS-9050  RAID-0
SID:0001 Init?
```

6.5 2HDD RAID1 creation sequence

1. Press ESC to cancel RAID auto creation mode.

```
ANS-9050  RAID-?
5 Disks!  Setup?
```

2. Press ENT to setup.

```
Create New RAID
```

3. Press ENT to create a new RAID. The defaults Members are all available HDDs.

```
RAID Members:
(1 2 3 4 5)
```

Press ENT to enter member selection.

```
RAID Members Sel
*1
```

Press Down to select HDD and press ENT to set/clear member HDD.

```
RAID Members Sel
3
```

Press Down to confirm page.

```
RAID Members Sel
Save & Exit?
```

Press ENT to save changes or ESC to cancel.

```
RAID Members sel
(1 2)
```

4. The default RAID Mode is RAID0. Press ENT to enter RAID mode selection.

```
RAID Mode:
(RAID-0)
```

Press ENT to change RAID mode to RAID 1.

```
RAID Mode Sel:
1
```

Press Down to continue.

```
RAID Mode:
(RAID-1)
```

5. The default Chunk Size is 64KB. Press ENT to change chunk size or press Down to continue.

```
Chunk Size:
(64KB)
```

6. The default SID is 0001. Press ENT to change SID or press Down to complete RAID parameter setting.

```
SID:
(0001)
```

7. Press ENT to confirm or press ESC to cancel.

```
ANS-9050  RAID-1
Create?
```

8. The function “Force Size 2TB” is designed to limit the RAID size within 2TB for operating systems that do not support hard disk drive over than 2TB. Press ENT to confirm or press ESC to use full available capacity. If the total available capacity is less than 2TB, this function will be hidden.

```
Force Size 2TB?
ENT:Yes, ESC:No
```

9. Press ENT to begin RAID initialize or press ESC to skip RAID initialize.

```
ANS-9050  RAID-1
SID:0001 Init?
```

After that, the HDD1 and HDD2 will be created as RAID1 members and HDD3~5 will be automatically set as spare HDDs.

6.6 Delete RAID sequence:

1. Under standby mode. Press ENT to enter main function.

Information

2. Press Down to Setup function.

Setup

3. Press ENT to enter Setup function.

RAID Setup

4. Press ENT to RAID Setup function.

Auto RAID
(Enabled)

5. Press Down twice to Delete RAID function.

Delete RAID
SID:0001

6. Press ENT to delete RAID.

Sure Delete?
ENT:Yes, ESC:No

7. Press ENT to confirm and RAID will be deleted.

[NOTE]
Del RAID Success

6.7 Disable Auto Spare sequence

1. Under standby mode, Press ENT to enter main function.

Information

2. Press Down to Setup function.

Setup

3. Press ENT to enter Setup function.

RAID Setup

4. Press ENT to RAID Setup function.

Auto RAID
(Enabled)

5. Press Down to Set Hot Spare function.

Set Hot Spare
(Auto Spare)

6. Press ENT to enter Set Hot Spare function.

Set Hot Spare
*Auto Spare

7. Press ENT to set/clear spare setting.

Set Hot Spare
Auto Spare

8. Press Down to confirm page.

Hot Spare Disks:
Save & Exit?

9. Press ENT to save changes.

Set Hot Spare
(No Spare Disk)

6.8 Set IP address sequence

1. Under standby mode, Press ENT to enter main function.

Information

2. Press Down to Setup function.

Setup

3. Press ENT to enter Setup function.

RAID Setup

4. Press Down to System Setup function.

System Setup

5. Press ENT to enter System Setup function.

Rebuild Rate
(Normal)

6. Press Down 5 times to Network Config function.

Network Config

7. Press ENT to enter Network Config function.

IP Address
192.168.0.1

8. Use ENT, Up, Down and ESC keys to set new IP.

New IP Address:
192.168.000.002

- 8-9. Press ENT to confirm changing.

IP Address
192.168.0.2

6.9 Check HDD S.M.A.R.T. Status sequence

1. Under standby mode, Press ENT to enter main function.

Information

2. Press ENT to enter Information function.

RAID Info

3. Press Down twice to Hard Disk Info function.

Hard Disk Info

4. Press ENT to enter Hard Disk Info function.

Select Disk Tray
1

5. Use Up and Down to select HDD and Press ENT to confirm.

Model ID:
WDC WD5000KS-00M

6. Press Down 5 times to check S.M.A.R.T. status.

S.M.A.R.T State:
Healthy

6.10 Check Event Log Sequence

1. Under standby mode, Press ENT to enter main function.

Information

2. Press Down twice to Event Log function.

Event Log

3. Press ENT to enter Event Log function.

Display Log

4. Use Up and Down to select event and press ENT to check detail

#003 99D23:59:59
NOTICE DISK

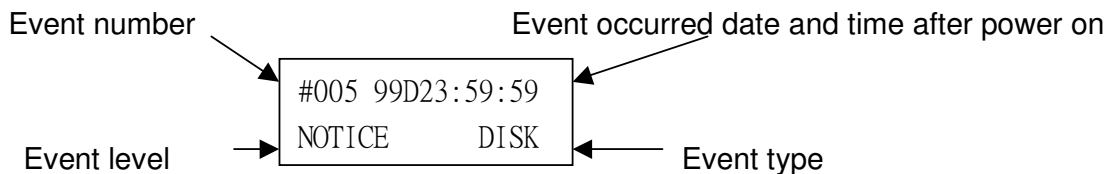
Please check Appendix A for more information about event log.

Appendix A: Event Log

There are many events will be recorded in the ANS-9050E. According to the order of severity of all events, they were discriminated into three levels, Notice, Warning and Error. Those events were listed at the following table. Whenever a problem occurred, we can check the event table to find the root cause and fix it or fill in the technical support form and contact us for further help.

Level	Type	Item
Notice	UPDATE	Firmware Updated
	DISK	HDD Too Small HDD Inserted HDD# Rebuild Start HDD# Rebuild Complete
	RAID	RAID Created RAID Deleted RAID Initial Start RAID Initial Complete Consistency Check Start Consistency Check Complete RAID Degraded
Warning	HWM	System Overheat 46
Error	DISK	HDD# SMART Failed HDD# Removed HDD# Failed HDD# Read Bad Sector (LBA address) HDD# Write Bad Sector (LBA address)
	HWM	Fan Failed
	RAID	RAID Failed

Event example:



Press ENT for detail or ESC to go back

HDD3 Inserted

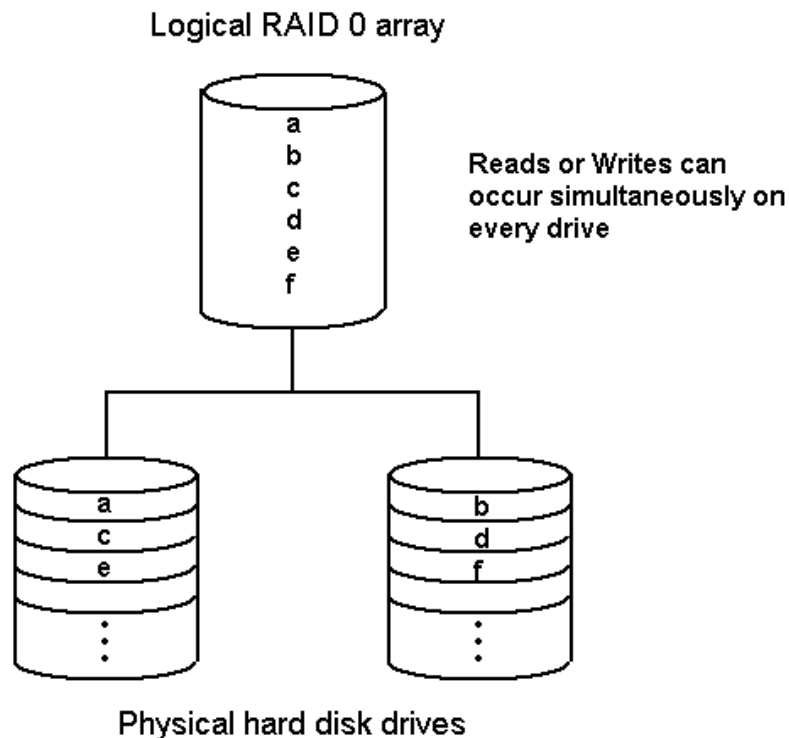
Appendix B: About RAID

RAID (Redundant Array of Independent Disks) is a system composed of many hard drives; that is, multiple physical drives form a single virtual drive to be recognized by the system. The advantages of RAID technology are increasing the read/write speed of a hard drive, achieving better data protection, and enlarging the capacity of a single drive like Drive C, Drive D, etc. Different classes of RAID have different composition modes and different functions.

RAID 0 (Striping)

RAID 0 must be composed of a pair of hard drives at least. When data are written into the whole hard drive, they will be equally striped and written into each hard drive of the array. Thus the access speed becomes quicker. The effect of RAID 0 is proportioned to the number of hard drives. More hard drives mean more read/write heads, and therefore the speed is quicker. Though RAID 0 is quick in read/write speed, it has no data redundancy, and accordingly has no fault tolerance.

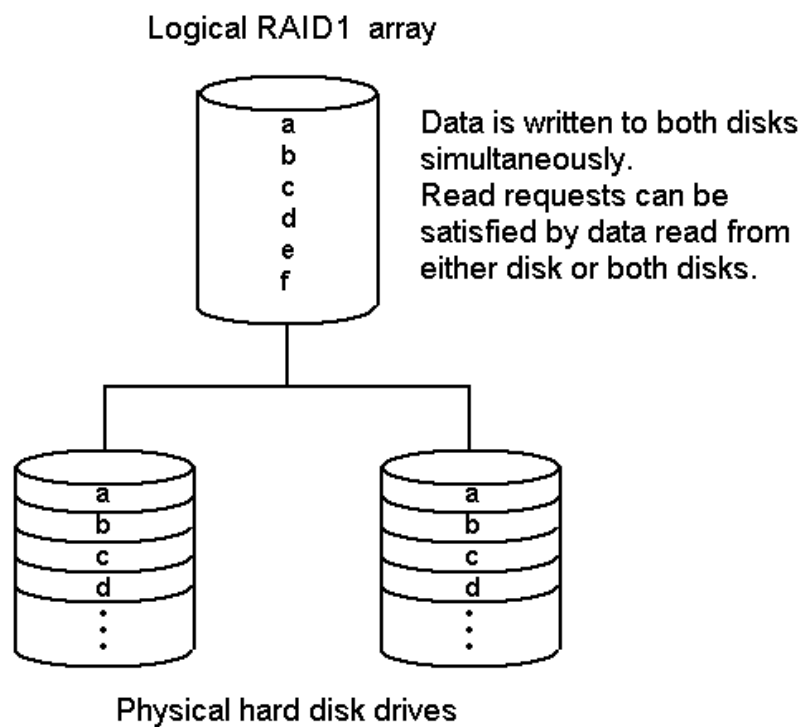
It is suggested to compose RAID 0 with hard drives of the same capacity. Because the capacity of striped disk array is the multiplication of the smallest hard drive capacity with the number of hard drives. For example, a 100GB hard drive and two 120GB hard drives unite into RAID 0. The total capacity is 300GB (100GB×3).



RAID 1 (Mirroring)

RAID 1 must be composed of hard drives in even number. The RAID controller will divide the hard drives into a pair, and write data simultaneously into the two hard drives. The two hard drives contain the same data. When one hard drive's data are damaged, you can replace the failed hard drive, and the RAID controller will restore the data by the backup on the other hard drive. For a single hard drive RAID 1 is the best in fault tolerance.

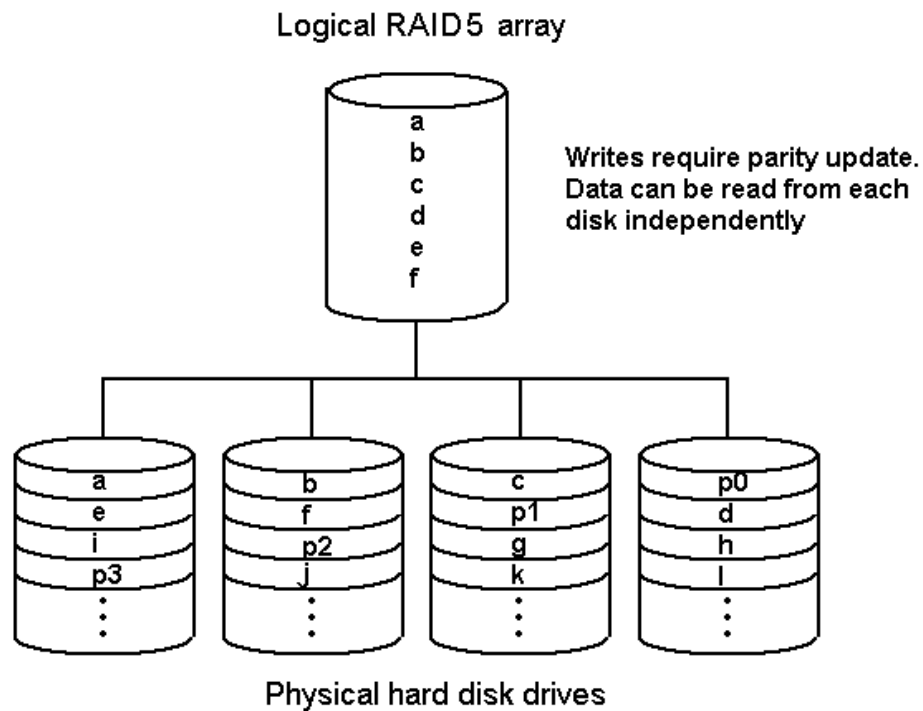
It is suggested to compose RAID 1 with hard drives of the same capacity. Because the capacity of mirrored disk array is that of the smallest hard drive. For example, a 100GB hard drive and a 120GB one unite into RAID 1. The total capacity is 100GB.



RAID 5 (Striping with Rotating Parity)

RAID 5 must be composed of three hard drives at least. The parity data of RAID 5 are not fixed in the same hard drive, but stored in every hard drive in turn. Accordingly, it is called rotating parity. After the RAID controller calculates the parity checking data by XOR, the parity checking data will be written into each hard drive along with data, so the overall performance is slower than RAID 0. RAID 5 can provide higher fault tolerance.

It is suggested to compose RAID 5 with hard drives of the same capacity. The capacity of striped disk array with rotating parity is the multiplication of the smallest drive capacity with the number of drives minus one. For example, a 100GB hard drive and two 120GB hard drives unite into RAID 5. The total capacity is 200GB (100GB×2).



Technical Support Form

Email: support@2SAN.com

Website: <http://www.2SAN.com>

Model	ANS-9050E	F/W Version	
Host System Configuration			
Motherboard			
BIOS version			
SATA host adapter			
Chipset			
Other I/O cards			
OS Revision			
Hard drive configuration			
No.	Model	Capacity	Firmware
HDD1			
HDD2			
HDD3			
HDD4			
HDD5			
Problem description:			